

**AMENDMENTS TO THE CLAIMS**

Claim 1 (previously presented): A slide drive device for a press machine having a slide, comprising:

- adjusting means for adjusting said slide drive device;
- said adjusting means to adjust a stroke of said slide
- and being pivotable about a center position to adjust said stroke;
- said center position being one of a top and a bottom dead center position of said slide;
- said adjusting means provided to receive a reciprocating motion;
- a connecting link coupled to said adjusting means;
- guiding means for guiding said slide drive device coupled to said connecting link;
- said connecting link being effective to transfer said reciprocating motion to said guiding

means;

- said guiding means being effective to convert said reciprocating motion to a linearly guided displacement motion;

- first and second drive branching links separately coupled to said guiding means;

- first and second toggle means coupled respectively to the first and second drive branching links, and said first and second toggle means coupled separately to the slide;

- wherein the first and second drive branching links respectively converts the linearly guided displacement motion to a toggling motion of the first and second toggle means, and the first and second toggle means transfer the toggling motion to a linear cyclic motion of the slide.

Claim 2 (previously presented): A slide drive device, according to claim 1, further comprising:

- a connecting rod;
- said connecting rod slidably guided by said adjusting means;
- a crank shaft;
- an eccentric part on said crank shaft;
- said eccentric part having said reciprocating motion;
- said connecting rod operably connects said eccentric part to said adjusting means; and

said connecting rod being effective to transfer said reciprocating motion to said adjusting means whereby said slide operates through said cycle.

Claim 3 (previously presented): A slide drive device, according to claim 2, wherein:

said adjusting means is operably affixed to said connecting rod;

said adjusting means is operable to guide said connecting rod along a specified trajectory;

and

said adjusting means is pivotable about said center position to adjust said specified trajectory whereby said stroke is adjusted.

Claim 4 (withdrawn): A slide drive device, according to claim 3, further comprising:

said first and said second upper toggle means;

a rotation center in each said first and second upper toggle means;

said rotation center permitting said first and second upper toggle means to rotate in an arc;

a first link connects each said rotation center to said at least one drive branching link;

said at least one drive branching link effective to transfer said guiding displacement to each said first and second upper toggle link means;

a first and a second lower toggle link;

a second link operably connects each said rotation center to each respective said lower toggle link; and

said first and second upper toggle means being effective to transfer said guiding displacement through said second links to respective said first and second lower toggle links and said slide whereby said slide operates through said cycle while maintaining a left and right balance.

Claim 5 (withdrawn): A slide drive device, according to claim 4, further comprising:

a guide board in said adjusting means;

a groove in said guide board;

a slider being slidable in said groove;

a pin extending from said slider;

said groove and said pin being pivotable about said center position;  
one end of a first and second end of said connecting rod;  
said one end operably fixed to said pin; and  
said slider and said pin being effective to transfer said reciprocating motion to said connecting link and said guiding means.

Claim 6 (withdrawn): A slide drive device according to claim 5, further comprising:

a base in said guiding means;  
a groove in said base;  
said groove being along a centerline between each said upper toggle means;  
a slider being slidable in said groove;  
said connecting link operably connected to said slider;  
said connecting link transferring said reciprocating motion to said slider whereby said slider operates along said centerline;  
said at least one drive branching link operably connected to said slider; and  
said at least one drive branching link and said slider transferring said guiding displacement to said first and second upper toggle means whereby said slide operates through said cycle while maintaining a left and right balance along said centerline.

Claim 7 (withdrawn): A slide drive device according to claim 6, further comprising;

a trajectory pin;  
a trajectory forming link;  
said trajectory pin in said adjusting means;  
said trajectory pin opposite said center position on said guide board;  
said trajectory forming link operably connecting said trajectory pin to said one end of said connecting rod; and  
said trajectory pin, said trajectory forming link, and said adjusting means being effective to convert said reciprocating motion of said one end to an arc-shaped trajectory.

Claim 8 (withdrawn): A slide drive device according to claim 6, wherein:

said adjusting means is operable at a position equidistant between said first and second upper toggle means;

said crank shaft and said eccentric part is below said adjusting means; and

said guide means is above said adjusting means opposite said crank shaft.

Claim 9 (withdrawn): A slide drive device according to claim 6, further comprising:

a first and second dynamic balancer means;

a first and second retention link;

said first and second retention links operably connecting each respective said upper toggle means to each respective said dynamic balancer means; and

each said first and second dynamic balancer means and said first and second retention links having a shape and a weight adaptable to each respective said first and second upper toggle link and said slide whereby vibration is minimized when said first and second upper toggle means drive said slide in said cycle

Claim 10 (withdrawn): A slide drive device, according to claim 5, further comprising:

a first pin in each said first and second upper toggle means;

said first links connects said first pins to each respective said rotation center on each said first and second upper toggle means; and

said at least one drive branching link operably connecting said first and second upper toggle means at said first pins on a common inner tangent line to each said arc.

Claim 11 (withdrawn): A slide drive device, according to claim 10, further comprising:

a first and second end on said at least one drive branching link;

said first and second ends operably at said first pins on said first and second upper toggle means;

a connection position on said drive branching link between said first and second ends; and

said connecting link operably connecting to said drive branching link at said connection position along said drive branching link..

Claim 12 (withdrawn): A slide drive device, according to claim 11, further comprising:

a first and second dynamic balancer means;

a first and second retention link;

said first and second retention links operably connecting each respective said upper toggle means to each respective said dynamic balancer means; and

each said first and second dynamic balancer means and said first and second retention links having a shape and a weight adaptable to each respective said first and second upper toggle link and said slide whereby vibration is minimized when said first and second upper toggle means drive said slide in said cycle

Claim 13 (withdrawn): A slide drive device, according to claim 12, further comprising:

said connecting link operably connects to said drive branching link at said connection position;

said connection position being equidistant said first and second ends; and

said drive shaft and said adjusting means are above said first and second upper toggle means and said drive branching link.

Claim 14 (withdrawn): A slide drive device, according to claim 12, further comprising:

said connecting link operably connects to said drive branching link at one of said first and second ends; and

said drive shaft and said adjusting means are below said first and second upper toggle means and said drive branching link.

Claim 15 (withdrawn): A slide drive device, according to claim 12, further comprising:

said connecting link operably connects to said drive branching link at one of said first and second ends;











said adjusting means is a single, shared adjusting means on which the motion of each of at least one drive branching link is dependent.

Claim 30 (withdrawn): A slide drive device, according to claim 22, further comprising:

- said first and said second upper toggle means;
- a rotation center in each said first and second upper toggle means;
- said rotation center permitting said first and second upper toggle means to rotate in an arc;
- a first link connects each said rotation center to said at least one drive branching link;
- a first and a second lower toggle link;
- a second link operably connects each said rotation center to each respective said lower toggle link; and

said first and second upper toggle means being effective to transfer said guiding displacement through said second links to respective said first and second lower toggle links and said slide whereby said slide operates through said cycle while maintaining a left and right balance.

Claim 31 (withdrawn): A slide drive device, according to claim 20, further comprising:

- a guide board in said adjusting means;
- a groove in said guide board;
- a slider being slidable in said groove;
- a pin extending from said slider;
- said groove and said pin being pivotable about said center position;
- one end of a first and second end of said connecting rod;
- said one end operably fixed to said pin; and
- said slider and said pin being effective to transfer said reciprocating motion to said connecting link and said guiding means.

Claim 32 (withdrawn): A slide drive device according to claim 18, further comprising:

- a first and second dynamic balancer means;
- a first and second retention link;



